

AMENDMENTS TO THE CLAIMS

- 1-2. (canceled)
3. (Currently amended) A coaxial resonator comprising:
 - an inner conductor formed on an outer surface of a columnar element;
 - a dielectric element having a hole formed therein, the columnar element being disposed in the hole;
 - an outer conductor formed on an outer surface of the dielectric element; and
 - a non-conducting element disposed between the columnar element and the dielectric element,wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated, ~~and~~
 - wherein a thickness of the conductor layers and a thickness of the dielectric layers are based on the non-conducting element, and
 - wherein the non-conducting element is air.
4. (previously presented) The coaxial resonator according to Claim 3, wherein the inner conductor comprises a plurality of helical lines.
5. (canceled)
6. (previously presented) The coaxial resonator according to Claim 3 or 4, wherein phase constants of lines for the conductor layers are substantially equal in the inner conductor and the outer conductor.
7. (canceled)
8. (Currently amended) A filter comprising:
 - a plurality of coaxial resonators, each coaxial resonator comprising:

an inner conductor formed on an outer surface of a columnar element, wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated;

a dielectric element having a hole formed therein, the columnar element being disposed in the hole;

an outer conductor formed on an outer surface of the dielectric element; and

a non-conducting element disposed between the columnar element and the dielectric element, wherein a thickness of the conductor layers and a thickness of the dielectric layers are based on the non-conducting element, and wherein the non-conducting element is air; and

an input/output device coupled to a predetermined coaxial resonator of the plurality of coaxial resonators.

9. (canceled)

10. (Currently amended) A duplexer comprising:

a transmission filter disposed between a transmission signal input port and a transmission/reception signal input/output port; and

a reception filter disposed between the transmission/reception signal input/output port and a reception signal output port,

wherein at least one of the transmission filter and the reception filter includes a plurality of coaxial resonators, each coaxial resonator comprising:

an inner conductor formed on an outer surface of a columnar element, wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated;

a dielectric element having a hole formed therein, the columnar element being disposed in the hole;

an outer conductor formed on an outer surface of the dielectric element; and

a non-conducting element disposed between the columnar element and the dielectric element, wherein a thickness of the conductor layers and a thickness of the dielectric layers are based on the non-conducting element, and wherein the non-conducting element is air; and

an input/output device coupled to a predetermined coaxial resonator of the plurality of coaxial resonators, the input/output device being coupled to a corresponding one of the ports.

11. (Currently amended) A communication device comprising:

a high-frequency circuit comprising a transmission circuit and a reception circuit; and

a duplexer comprising:

a transmission filter disposed between a transmission signal input port and a transmission/reception signal input/output port; and

a reception filter disposed between the transmission/reception signal input/output port and a reception signal output port,

wherein at least one of the transmission filter and the reception filter includes a plurality of coaxial resonators, each coaxial resonator comprising:

an inner conductor formed on an outer surface of a columnar element, wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated;

a dielectric element having a hole formed therein, the columnar element being disposed in the hole;

an outer conductor formed on an outer surface of the dielectric element; and

a non-conducting element disposed between the columnar element and the dielectric element, wherein a thickness of the conductor layers and a thickness of the dielectric layers are based on the non-conducting element, and wherein the non-conducting element is air; and

an input/output device coupled to a predetermined coaxial resonator of the plurality of coaxial resonators and coupled to a corresponding one of the ports.

12. (Currently amended) A communication device comprising:

a high-frequency circuit comprising at least one of a transmission circuit and a reception circuit, the high-frequency circuit comprising:

a plurality of coaxial resonators, each coaxial resonator comprising:

an inner conductor formed on an outer surface of a columnar element, wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated;

a dielectric element having a hole formed therein, the columnar element being disposed in the hole;

an outer conductor formed on an outer surface of the dielectric element; and

a non-conducting element disposed between the columnar element and the dielectric element, wherein a thickness of the conductor layers and a thickness of the dielectric layers are based on the non-conducting element, and wherein the non-conducting element is air; and

an input/output device coupled to a predetermined coaxial resonator of the plurality of coaxial resonators.

13-21. (canceled)

22. (new) A coaxial resonator comprising:

- an inner conductor formed on an outer surface of a columnar element;
- a dielectric element having a hole formed therein, the columnar element being disposed in the hole;
- an outer conductor formed on an outer surface of the dielectric element; and
- a non-conducting element disposed between the columnar element and the dielectric element,
- wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated,
- wherein a thickness of the conductor layers and a thickness of the dielectric layers are based on the non-conducting element, and
- wherein the inner conductor is formed separate from the dielectric element and inserted into the hole of the dielectric element.